



Workshop

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CREATING AI PERSONAS FOR EDUCATIONAL SETTINGS: A PREPARED4ED APPROACH

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ABSTRACT

This hands-on workshop equips engineering educators with practical skills to design and implement AI personas that enhance teaching and learning experiences. Using the evidence-informed PREPARED4ED framework, participants will learn to craft effective prompts that align AI capabilities with sound pedagogical principles. Through live demonstrations and guided exercises, participants will experience how AI personas can support diverse educational goals—from guiding students through complex problem-solving to providing personalized feedback while maintaining academic integrity. Working in collaborative groups, attendees will create and test their own AI personas, iteratively refining them to address specific educational challenges. The workshop emphasizes responsible AI integration that augments rather than replaces critical thinking, ensuring that technology enhances rather than diminishes authentic learning. Participants will leave with working prototypes, practical implementation strategies, and a deeper understanding of how AI can be ethically leveraged to transform engineering education. This workshop offers valuable insights for all educators, regardless of prior AI experience, who seek to responsibly incorporate generative AI into their teaching practice.

1 BACKGROUND AND RATIONALE

1.1 The Emerging Role of AI in Engineering Education

Engineering education stands at a critical inflection point as generative AI technologies rapidly transform educational landscapes. While these tools offer unprecedented opportunities for personalization, immediate feedback, and interactive learning experiences, they simultaneously present challenges to

traditional teaching methods, assessment practices, and academic integrity (Kasneci et al., 2023; Roll & Wylie, 2016). Engineering educators increasingly need to navigate this complex terrain, determining how to meaningfully integrate AI while preserving the essential learning processes that develop critical thinking and problem-solving skills (Biesta, 2015).

Research indicates a growing challenge of differentiating between human and AI-generated text, emphasizing the urgent need for educators and students to develop new competencies and critical thinking skills for effectively integrating LLMs in education, while acknowledging concerns about potential misuse and proposing detection methods for AI-generated content alongside strategies that leverage these tools to enhance problem-solving abilities, particularly for older learners (Kasneci et al., 2023). This creates an urgent need for educators to develop expertise not only in using these tools themselves but in designing educational experiences that leverage AI's strengths while mitigating potential risks such as cognitive offloading, overreliance on technology, and surface-level understanding (Zawacki-Richter et al., 2019).

1.2 AI Personas as Pedagogical Tools

AI personas—customized AI interfaces designed with specific pedagogical roles and characteristics—represent a promising approach for integrating AI into educational settings. When thoughtfully developed, these personas can serve as learning companions, guides, or formative assessment tools that align with specific educational objectives (Khan, 2023). They offer a structured way to harness AI capabilities while maintaining clear pedagogical intentionality (Verkuilen & Griffioen, 2024).

For engineering education specifically, AI systems, like AI personas, can help address persistent challenges such as providing individualized guidance in large classes, offering just-in-time support for complex problem-solving, and creating opportunities for students to articulate and test their understanding through dialogue (Roll & Wylie, 2016). However, creating effective AI personas requires more than technical knowledge of prompting techniques; it demands an understanding of how to align AI capabilities with sound educational principles (Tomlinson, 2014).

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1.3 The PREPARED4ED Framework

AI personas need to be intentionally trained as teachers, not just as sources of information, because—as Wiley (2023) argues—teaching is a distinct professional activity, not a side hustle. The PREPARED4ED framework offers a structured, evidence-informed approach to designing AI educational experiences (Verkuilen & Griffioen, 2024). Grounded in established educational theories including Bloom's Taxonomy, Self-Determination Theory (Ryan & Deci, 2000), Vygotsky's Zone of Proximal Development (Vygotsky, 1978), and Kolb's Experiential Learning Cycle

(Kolb, 1984), this framework guides educators through the process of creating AI personas that serve meaningful educational purposes.

Each element of the PREPARED4ED acronym addresses a critical aspect of effective AI integration:

- **Purposeful Prompt:** Clear alignment with specific learning objectives
- **Relevant Role:** Connected to students' interests and prior knowledge
- **Experiential and Explicit:** Involving authentic application and practice
- **Progressive and Ask:** Building complexity gradually to manage cognitive load (Sweller et al., 1998)
- **Assessable and Parameters:** Supporting meaningful evaluation of learning
- **Reflective:** Encouraging metacognition and self-regulation
- **Engaging Emotion:** Stimulating curiosity and critical thinking
- **Differentiated:** Adapting to diverse learning needs and preferences (Tomlinson, 2014)

By applying this framework to the development of AI personas, educators can ensure that their use of AI technology is pedagogically sound, ethically responsible (Prinsloo & Slade, 2017), and genuinely beneficial to student learning.

This workshop addresses a critical gap in engineering education by providing educators with both the conceptual understanding and practical skills needed to develop effective AI personas that enhance rather than diminish authentic learning experiences (Biesta, 2015; Khan, 2023).

2 WORKSHOP OBJECTIVES

2.1 Target audience

This workshop is designed for engineering educators across various roles who seek to effectively integrate AI into their teaching practice:

- Lecturers and professors looking to innovate their teaching approaches
- Laboratory instructors seeking interactive tools for hands-on learning
- Curriculum designers interested in incorporating AI-enhanced learning experiences
- Educational developers supporting faculty in technology integration
- Program directors considering the strategic implementation of AI across courses
- The workshop is accessible to participants with varying levels of AI experience:
- Newcomers to AI will gain foundational understanding and practical starting points
- Educators with basic AI familiarity will learn structured approaches to enhance their practice
- Experienced AI users will benefit from the pedagogical framework to refine their implementations

No specialized technical knowledge is required beyond basic digital literacy.

Participants should bring a laptop or tablet with internet access and have or create a (free) ChatGPT account before attending. A bit of prompting knowledge is helpful but not necessary.

2.2 Expected learning outcomes

By the end of this workshop, participants will be able to:

1. Apply the PREPARED4ED framework to design pedagogically sound AI personas for specific educational contexts in engineering
2. Create effective prompts that consistently generate helpful, accurate responses aligned with intended learning outcomes
3. Critically evaluate AI personas for potential issues including cognitive offloading, bias, and academic integrity concerns
4. Implement strategies for using AI personas that enhance student engagement and active learning rather than replacing essential cognitive processes
5. Design differentiated learning experiences using AI personas that address diverse student needs and learning preferences
6. Develop implementation plans for integrating AI personas into existing courses while maintaining pedagogical integrity
7. Articulate principles of responsible AI use in engineering education to colleagues and students

These outcomes reflect a balanced approach that embraces innovation while maintaining critical awareness of both the potential and limitations of AI in educational settings.

3 WORKSHOP DESIGN

3.1 Time plan

This workshop combines short presentations, live demonstrations, collaborative group work, and peer feedback. You'll move between exploring ideas, creating AI personas, testing them, and refining your designs. The mix of activities is designed to keep things practical, interactive, and directly relevant to your teaching.

Table 1. Workshop time plan

Run time	Activity	Description
Entry minutes	Formation of working groups	Participants group according to educational challenges/interests. Simply by sitting at the table with the AI persona(s) of their choice.
5 minutes	Introduction to workshop	What, when and what not. Overview of AI and its educational implications
5 minutes	Your journey with AI?	Getting to know each other and their journey with AI
10 minutes	Video exercise prompting	Prompting needs to be specific, which elements should it contain?
5 minutes	Prompt your own AI Persona	Develop initial AI personas based on the prompt framework Role, Goal, Format & Workflow
5 minutes	Introducing PREPARED4ED Framework	Explanation of framework elements with engineering education examples and a

		demonstration of the Framework at work with the PREPARED4ED GPT
20 minutes	Designing AI Personas	Working with the PREPARED4ED GPT to improve the prompt for the AI Persona. Testing the AI Persona.
10 minutes	Lessons Learned	Sharing obtained results and experiences

3.2 Interactivity

The workshop is designed as a hands-on, collaborative experience with a variety of activity types to support active learning and professional dialogue:

1. Self-selection and peer connection: Participants begin by grouping themselves based on interest in specific AI personas, fostering immediate relevance and peer alignment. Before the workshop starts this will already create discussions about what is important in their educational settings.
2. Dialogic and experiential learning: Short plenary sessions introduce core concepts and invite participants to share their own AI journeys, building on prior knowledge and establishing a shared foundation.
3. Interactive prompting exercise based on a video: A guided activity using video helps participants to understand that prompting is not easy and to identify what makes a prompt effective, setting the stage for persona creation.
4. Hands-on persona design with scaffolded support: Using the Role, Goal, Format & Workflow framework followed by the PREPARED4ED framework, participants create and iteratively refine AI personas using GPT tools, peer and facilitator feedback. Groups will test their AI personas with real queries and scenarios, documenting both successful interactions and limitations. This iterative process mirrors authentic design methodologies and provides immediate evidence of effectiveness.
5. Collaborative reflection and knowledge sharing: Groups test their personas, share insights, and surface lessons learned in a closing round to consolidate learning and support transfer to practice.

Throughout these activities, facilitators will circulate among groups, providing guidance, answering questions, and helping participants overcome technical or conceptual challenges. The workshop emphasizes learning by doing, with brief instructional segments followed by extended periods of active engagement with the tools and concepts.

To ensure maximum participation and accessibility, the workshop will:

- Provide template documents and examples to scaffold the design process
- Incorporate both individual reflection and group discussion components
- Maintain a balance between minimal technical skills and pedagogical considerations
- Address ethical dimensions of AI use throughout, rather than treating them as a separate topic, but not explicit since that is not the main topic of the workshop.

This multifaceted approach ensures that participants remain actively engaged throughout the session while developing practical skills they can immediately apply in their own educational contexts.

4 WORKSHOP RESULTS

[This section will be completed after the conference with findings, participant feedback, and outcomes of the workshop.]

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AUTHOR NOTE:

The author used generative AI tools to refine aspects of the text for improved clarity and readability. All content, accuracy, and scientific rigor remain the sole responsibility of the author.